



Partner Reported Opportunities (PROs)
For Reducing Methane Emissions

Compressors/Engines ☐
Dehydrators ☒
Pipelines ☐
Pneumatics/Controls ☐
Tanks ☐
Valves ☐
Wells ☐
Other ☐

Convert Gas-Driven Chemical Pumps to Instrument Air

Applicable sector(s):

☒ Production ☒ Processing ☒ Transmission and Distribution

Partners reporting this PRO: ExxonMobil Production Co.

Other related PROs: Pipe Glycol Dehydrator to Vapor Recovery Unit, Install Instrument Air Systems, Replacing Gas Assisted Glycol Pumps with Electric Pumps

Technology/Practice Overview

Description

Circulation pumps in glycol dehydration units and chemical transfer pumps are often powered by pressurized natural gas. As part of their normal operation, these devices will vent methane gas to the atmosphere.

One partner reported replacing natural gas with instrument air to drive the glycol circulation and chemical transfer pumps. The use of instrument air results in an increase in operational efficiency, a decrease in maintenance costs, and a reduction in emissions of methane, volatile organic compounds (VOCs) and hazardous air pollutants (HAPs).

Principal Benefits

Reducing methane emissions was:

☒ **A primary justification for the project** ☐ **An associated benefit of the project**

Operating Requirements

Utilizes excess capacity of an existing instrument air system.

Applicability

Applicable at all sites with available electrical power.

Methane Savings

2,500 Mcf/yr

Costs

Capital Costs (including installation)

☐ < \$1,000 ☒ \$1,000-\$10,000 ☐ > \$10,000

Operating and Maintenance Costs (Annual)

☐ < \$100 ☒ \$100-\$1,000 ☐ > \$1,000

Payback (Years)

☒ 0-1 ☐ 1-3 ☐ 3-10 ☐ > 10

Methane Emission Reductions

The methane emission savings was estimated for a dehydration unit circulating 3 gallons of glycol per pound of water removed, a water removal of 56 lbs. per MMcf of gas processed, an over circulation ratio of 2 and a methane emissions reduction rate of 2 scf per gallon of glycol circulated. One partner has reported methane savings of 9,125 MMcf/yr for glycol pumps and other pneumatic services.

Economic Analysis

Basis for Costs and Savings

Methane emission reductions of 2,500 Mcf/yr are based on one gas assisted glycol pump sized for a gas dehydration unit that processes 10 MMcf/d of wet gas.

Discussion

This technology has a quick payback. Capital costs are associated with the installation of piping between the air compressor and the glycol dehydrator pump. This capital cost is assumed to be incremental to the cost of the air compressor already used for pneumatic controls. The operating cost is electricity for compressing the required air volume.